

AN ESTIMATE OF THE MIGRATORY TIMING AND ABUNDANCE OF
SOCKEYE SALMON INTO UPPER COOK INLET, ALASKA, IN 2001

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ABSTRACT

A test fishery was conducted during the 2001 Upper Cook Inlet commercial salmon fishery. The primary objectives of this project were to estimate the abundance and run-timing of the sockeye salmon *Oncorhynchus nerka* return as it passed a transect located along the southern boundary of the management area. Three in-season estimates of the total sockeye salmon return were determined. The test fishery operated from 1-July to 30-July and captured 2,223 sockeye salmon representing 1,586 CPUE points. The mean date of the run was 13-July, and the test fishery encompassed approximately 96.5% of the total run.

KEY WORDS: Salmon, *Oncorhynchus*, Upper Cook Inlet, Alaska, test fishery, migratory behavior

INTRODUCTION

In 1979 the Alaska Department of Fish and Game (ADF&G) began an Offshore Test Fish (OTF) project near the southern boundary of the Upper Cook Inlet (UCI) salmon management area (Figure 1). The objective of this project was to estimate the total run of sockeye salmon *Oncorhynchus nerka* returning to UCI before these fish reached commercial harvest areas. These data are extremely important to ADF&G management biologists as they set and adjust commercial fishing times and areas to most effectively harvest sockeye salmon that are surplus to spawning needs. Test fishing results have been reported annually since 1979 (Waltemyer 1983a, 1983b, 1986a, 1986b, Hilsinger and Waltemyer 1987, Hilsinger 1988, Tarbox and Waltemyer 1989, Tarbox 1990, 1992, 1994, 1995, 1996, 1997, 1998a, 1998b, 1999, and Shields 2000). This report presents the results of the 2001 test-fishing project.

METHODS

Test Fishing

Sockeye salmon returning to Upper Cook Inlet were sampled by fishing geographically fixed stations between Anchor Point and Red River Delta (Figure 1). Stations were numbered consecutively from east to west, with station locations being determined from LORAN C coordinates. A chartered test-fishing vessel sampled stations 4 - 8 daily, traveling east to west on odd-numbered days and west to east on even-numbered days.

Sampling started on 1 July and continued through 30 July. The chartered vessel, *F/V Corrina Kay*, fished 366 m (1,200 ft) of 2.1 cm (5 1/8 in) multi-filament drift gillnet. The net was 45 meshes deep and was constructed of double knot Super Crystal shade number 1 and had a filament size of number 53/S6F.

All captured salmon were identified to species and sex and were measured for fork length (mid-eye to fork-of-tail) to the nearest mm. The number of fish caught at each station was expressed as a catch per unit of effort (CPUE) statistic for each species:

$$CPUE_s = \frac{100 fm \times 60 \text{ min} \times \text{number of fish}}{fm \text{ of gear} \times MFT} \quad (1)$$

where: $CPUE_s$ = CPUE for station s, and
MFT = mean fishing time.

Mean fishing time (MFT) was calculated as:

$$MFT = (C - B) + \frac{(B - A) + (D - C)}{2} \quad (2)$$

where: A = time net deployment started,
B = time net fully deployed,
C = time net retrieval started, and
D = time net fully retrieved.

Once deployed at a station, gillnets were fished 30 min before retrieval started.

Daily CPUE ($CPUE_d$) was calculated as:

$$CPUE_d = \sum_{s=1}^n CPUE_s \quad (3)$$

The following physical and chemical measurements were taken at the start of each set: air temperature, water temperature (at 1 m below the surface), wind velocity and direction, tide stage, water depth, and water clarity. Air and water temperatures were measured using a YSI salinity/temperature meter. Wind speed was measured in knots and direction was recorded as 0 (no wind), 1 (north), 2 (northeast), 3 (east), 4 (southeast), 5 (south), 6 (southwest), 7 (west), or 8 (northwest). Tide stage was classed as 1 (high slack), 2 (low slack), 3 (flooding), or 4 (ebbing) by observing the movement of the vessel while drifting with the gill net. Water depth was measured in fathoms (fm) using a Simrad echo sounder, and water clarity was measured in meters (m) using a 17.5 cm secchi disk.

Describing the Salmon Migration

Catchability, the fraction of the available population taken by a defined unit of fishing effort, was estimated as:

$$q_d = c_d / r_d \quad (4)$$

where: q_d = estimated catchability on day d,
 r_d = adjusted cumulative total return on day d, and
 c_d = cumulative CPUE on day d.

Passage rate, the expansion factor used to convert CPUE into estimated numbers of salmon passing the test fishing transect, was calculated as:

$$PR = 1/q_d \quad (5)$$

Since the test fishery did not encompass the entire sockeye salmon run, the total CPUE for the test fishery was estimated after the season using the following relationships:

$$CPUE_t = CPUE_f \times \frac{H_t}{H_{(f+2)}} \quad (6)$$

where: $CPUE_t$ = total estimated CPUE for the season,
 $CPUE_f$ = cumulative CPUE through final day, f, of test fishing,
 H_t = total commercial harvest for the season
 $H_{(f+2)}$ = total commercial catch through final day of test fishery (f+2), and
2 = number of days it took salmon to travel from test fishery to commercial harvest areas.

$$CPUE_t = CPUE_f \times \frac{E_t}{E_{(cd+2)} + E_{(nd+4)}} \quad (7)$$

where: $CPUE_t$ = total estimated CPUE for the season,
 $CPUE_f$ = cumulative CPUE through final day, f, of test fishing,
 E_t = total escapement for the season
 $E_{(cd+2)}$ = total escapement through final day of test fishery (f+2) in the central district
 $E_{(nd+4)}$ = total escapement through final day of test fishery (f+2) in the northern district
2, 4 = number of days it took salmon to travel from test fishery to spawning streams

Estimates of $CPUE_t$ and $CPUE_d$ values were used to estimate daily and cumulative proportions of $CPUE_t$, based on a non-linear model:

$$y_d = 1/(1 + e^{-(a+bd)}) \quad (8)$$

where: y_d = cumulative proportion of CPUE or return on day d,
a and b = coefficients of model,
d = day of observation.

To calculate mean date of return, which is the day on which approximately 50% of the total run had passed the OTF transect, the following formula was used:

$$M = a/b \quad (9)$$

where: M = mean date of return,
 a and b = coefficients of model

RESULTS AND DISCUSSION

A total of 2,223 sockeye salmon, 283 pink salmon *O. gorbuscha*, 933 chum salmon *O. keta*, 1,209 coho salmon *O. kisutch*, and 11 chinook salmon *O. tshawytscha*, were captured during the 2001 test fishery (Table 1, Appendices A-D). Daily sockeye salmon catches ranged from 5 to 253 fish (Table 1).

The cumulative total sockeye salmon CPUE for the duration of the 2001 project was 1,586 (Table 1), with CPUE values ranging from 4.1 on July 22 to 167 on July 9. Using post-season commercial harvest data, test fishing spanned 99.5% of the total run. However, due to commercial fishery restrictions implemented in late-July and August to provide for spawning escapement needs of chinook and sockeye salmon in the Kenai River, very little commercial harvest of sockeye salmon transpired after July 30 (>99% of the harvest occurred by July 30). Therefore, a second estimate of the portion of the sockeye return available to the test fishery was made using a combination of commercial harvest and escapement (see formulas 6 & 7). Based upon the combined catch and escapement figures, the test fishery encompassed 96.5% of the run. Using this figure, the cumulative test fishery CPUE would have been 1,644.

Sockeye salmon catches along the transect were similar to the distribution of CPUE values (Tables 2 and 3).

Examination of the daily and cumulative proportions (estimated post season) of the sockeye salmon run to UCI suggested that 8.9% of the run had passed the transect prior to the start of test fishing on 1 July and that the run was 96.9% completed at project termination (Appendix E; Figure 2). The mean date of the run was 13 July, which was two days early relative to the historic average (Table 4).

The total sockeye salmon run to UCI in 2001 was estimated to be 3.5 million fish, of which 1.83 million were harvested in the commercial fishery. Estimated passage rate for the season was 2,126 sockeye salmon per CPUE index point.

Water temperatures measured along the transect were 10-12° C early in July and then warmed to a high of 13.3° C toward the end of the month (Appendix F). The seasonal mean water temperature of 10.7° C was approximately 0.5° C above the long-term average (Appendix H). Air temperatures fluctuated between 10° C and 19° C during the project (Appendix F), averaging 12.9° C for the year, which was very close to the long-term average. Wind velocities were above average intensity (third highest since testfish project began) and quite variable in direction for most of the season (Appendix H). Six of the first fifteen days of the project had winds originating out of the north, which may have affected fish swimming up the east side beaches, in effect delaying their normal northerly migration. This theory is substantiated by stronger than normal harvests of salmon in the Ninilchik and southern Coho stat areas.

During the 2001 commercial salmon fishing season, three formal estimates of the total run of sockeye salmon to UCI were completed (Appendix G). The first estimate was made on 16 July, using a passage rate of 2,168 sockeye salmon per index point. The best fit of the 2001 data matched the 1987 run-timing curve, with a total CPUE estimate of 3,190 and a total return estimate of 6.9 million fish. Because past studies indicate that the first best-fit estimate has not always been the most accurate in predicting the total return, the second and perhaps third best-fit estimates have been evaluated during the conduct of the project to see how they perform. The second best-fit estimate based on the 16 July data followed the 1994 run-timing curve and also estimated a total return of 6.9 million sockeye salmon based on a total CPUE estimate of 3,186 points. The next in-season estimate was made following the commercial fishery on 19 July. Passage rate and total sockeye salmon CPUE were estimated at 2,084 and 2,967, respectively, based upon the entry pattern of the best fit, which had changed to 1994. The total return was estimated at 6.2 million fish. The second-best fit of the 19 July data followed the 1987 entry pattern timing and estimated a total return of 6.1 million fish. The final formal estimate of the 2001 total sockeye salmon return to UCI was made following the 26 July fishery. The best fit was 1988, with a total return estimate of 3.7 million fish using a total cumulative CPUE estimate of 1,752 and a passage rate estimate of 2,121. The second best-fit followed the 1984 entry pattern and estimated a total return of 3.3 million fish based upon a total CPUE estimate of 1,572. A very interesting pattern emerged between the 19 July estimate and the 26 July estimate, that being that the top five best-fit estimates on 19 July all tracked returns to UCI that were late (> 15 Jul) in their entry pattern, while four of the five best-fit estimates on 26 July tracked early returns and one tracked an on-time return (Table 5). This significant change in the OTF estimates alerted managers to the fact that the 2001 return was likely early and weaker than the pre-season forecast had indicated.

The 2001 season very closely mimicked the 2000 run, with the mid-point of the sockeye salmon return being July 13, which is two days earlier than the average timing across the testfish transect. Since 1988 there have only been four years where the mid-point of the return occurred before 15 July (Figure 3). Considering the fact that current management plans direct commercial fish managers to meet different escapement goals in the Kenai River based upon the size of the total sockeye salmon return originating from this system, the OTF project has become an essential tool for these managers to gauge the size of the return as early as possible. The first formal forecast of

the total return, based on the OTF total CPUE estimate, occurs around 20 July. Figure 3 shows that for runs that are on time or late, the 20 July testfish estimate is very accurate (-6.3% to +13.3% of the actual return). However, for runs that enter the district two or more days earlier than average, the OTF curve-fitting estimator does not perform nearly as well. Therefore, OTF project leaders need to evaluate these data to determine if a method might be developed to more effectively detect early returns to Cook Inlet. Length at age analyses as well as an assessment of the Kasilof River to Kenai River proportion of the return on 20 July may provide further insight into defining temporal differences in yearly returns.

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Table 1. Summary of sockeye salmon fishing effort, daily and cumulative catch, and daily and cumulative CPUE, Upper Cook Inlet offshore test fish project, 2001.

Date	Number of Stations	Mean Fishing Time (min)	CATCH		CPUE		Mean Length (mm)
			Daily	Cum	Daily	Cum	
1-Jul	6	221.0	38	38	31	31	549
2-Jul	6	218.5	15	53	12	43	572
3-Jul	6	236.0	108	161	75	118	567
4-Jul	6	223.5	63	224	48	167	555
5-Jul	6	225.5	70	294	52	219	530
6-Jul	6	225.0	78	372	60	278	540
7-Jul	6	228.0	184	556	120	398	547
8-Jul	6	221.0	84	640	67	465	564
9-Jul	6	253.5	253	893	167	631	558
10-Jul	6	233.0	102	995	75	706	558
11-Jul	6	233.5	117	1,112	83	790	561
12-Jul	6	231.0	107	1,219	70	860	564
13-Jul	6	221.0	22	1,241	18	877	568
14-Jul	6	228.5	101	1,342	73	950	565
15-Jul	6	239.0	165	1,507	99	1,050	580
16-Jul	6	219.0	63	1,570	46	1,095	575
17-Jul	6	229.5	88	1,658	59	1,155	565
18-Jul	6	219.5	49	1,707	38	1,192	571
19-Jul	5	194.0	125	1,832	101	1,294	576
20-Jul	6	213.0	23	1,855	19	1,313	566
21-Jul	6	214.0	5	1,860	4	1,317	540
22-Jul	6	212.5	5	1,865	4	1,321	560
23-Jul	6	208.0	43	1,908	37	1,358	573
24-Jul	6	228.5	127	2,035	91	1,450	582
25-Jul	6	236.0	58	2,093	46	1,495	574
26-Jul	6	253.5	44	2,137	30	1,525	577
27-Jul	6	251.0	40	2,177	26	1,551	569
28-Jul	6	222.0	21	2,198	16	1,567	584
29-Jul	5	185.5	18	2,216	14	1,581	567
30-Jul	4	147.5	7	2,223	6	1,586	581

Table 2 Estimated sockeye salmon catch by date and station, Upper Cook Inlet offshore test fish project 2001.

Date	Station Number						Total
	4	5	6	6.5	7	8	
1-Jul	0.0	7.2	3.3	4.9	14.4	0.8	30.7
2-Jul	7.4	0.0	0.0	0.8	0.8	3.3	12.3
3-Jul	3.9	1.6	34.8	30.7	4.1	0.0	75.1
4-Jul	0.0	7.8	30.0	8.9	1.7	0.0	48.4
5-Jul	4.9	1.6	7.3	32.5	5.7	0.0	52.0
6-Jul	4.7	0.8	29.6	13.4	11.0	0.0	59.6
7-Jul	1.4	1.7	66.2	27.1	21.2	2.0	119.6
8-Jul	0.0	17.9	16.1	29.6	0.0	3.3	67.0
9-Jul	0.0	22.5	53.2	43.7	46.5	0.8	166.7
10-Jul	3.3	4.9	21.0	27.8	17.2	0.8	75.1
11-Jul	0.8	3.2	35.9	15.4	12.0	16.0	83.3
12-Jul	2.5	0.8	0.8	56.9	5.7	3.2	69.9
13-Jul	4.2	0.0	6.0	2.5	4.0	0.8	17.5
14-Jul	3.3	0.8	4.2	2.4	35.3	27.1	73.3
15-Jul	1.7	2.5	7.1	1.6	76.8	9.7	99.3
16-Jul	4.2	0.0	1.7	38.1	1.6	0.0	45.7
17-Jul	0.9	0.9	2.4	6.2	28.8	19.8	59.0
18-Jul	0.0	21.0	3.3	13.7	0.0	0.0	38.0
19-Jul		4.0	16.5	44.7	19.3	16.6	101.2
20-Jul	0.8	0.0	6.6	11.8	0.0	0.0	19.2
21-Jul	0.0	3.4	0.8	0.0	0.0	0.0	4.3
22-Jul	0.8	1.6	0.0	1.7	0.0	0.0	4.1
23-Jul	0.0	0.8	16.7	5.6	10.8	3.2	37.2
24-Jul	0.8	18.7	21.0	32.1	18.4	0.0	91.1
25-Jul	2.5	3.0	38.5	0.8	0.8	0.0	45.6
26-Jul	0.0	5.3	8.1	0.7	10.8	4.8	29.7
27-Jul	1.7	0.8	18.4	4.4	0.7	0.0	26.1
28-Jul	0.0	0.8	11.4	2.5	0.8	0.0	15.5
29-Jul	1.7		7.8	3.2	1.6	0.0	14.3
30-Jul	3.3	1.5	0.0	0.8			5.7
TOTAL	55	135	469	465	350	112	1,586
%	3.5	8.5	29.6	29.3	22.1	7.1	100.0

Table 3. Estimated sockeye salmon CPUE by date and station, Upper Cook Inlet offshore test fish project, 2001.

Date	Station Number						Total
	4	5	6	6.5	7	8	
1-Jul	0.0	9.0	4.0	6.0	18.0	1.0	38.0
2-Jul	9.0	0.0	0.0	1.0	1.0	4.0	15.0
3-Jul	5.0	2.0	51.0	45.0	5.0	0.0	108.0
4-Jul	0.0	10.0	40.0	11.0	2.0	0.0	63.0
5-Jul	6.0	2.0	9.0	46.0	7.0	0.0	70.0
6-Jul	4.0	1.0	42.0	17.0	14.0	0.0	78.0
7-Jul	1.0	2.0	107.0	43.0	30.0	1.0	184.0
8-Jul	0.0	23.0	21.0	36.0	0.0	4.0	84.0
9-Jul	0.0	30.0	86.0	67.0	69.0	1.0	253.0
10-Jul	4.0	6.0	29.0	39.0	23.0	1.0	102.0
11-Jul	1.0	4.0	58.0	19.0	15.0	20.0	117.0
12-Jul	3.0	1.0	1.0	91.0	7.0	4.0	107.0
13-Jul	5.0	0.0	8.0	3.0	5.0	1.0	22.0
14-Jul	4.0	1.0	5.0	3.0	50.0	38.0	101.0
15-Jul	2.0	3.0	9.0	2.0	137.0	12.0	165.0
16-Jul	5.0	0.0	2.0	54.0	2.0	0.0	63.0
17-Jul	1.0	1.0	3.0	8.0	38.0	37.0	88.0
18-Jul	0.0	27.0	4.0	18.0	0.0	0.0	49.0
19-Jul	-	5.0	22.0	47.0	28.0	23.0	125.0
20-Jul	1.0	0.0	8.0	14.0	0.0	0.0	23.0
21-Jul	0.0	4.0	1.0	0.0	0.0	0.0	5.0
22-Jul	1.0	2.0	0.0	2.0	0.0	0.0	5.0
23-Jul	0.0	1.0	24.0	7.0	7.0	4.0	43.0
24-Jul	7.0	24.0	28.0	45.0	23.0	0.0	127.0
25-Jul	3.0	4.0	49.0	1.0	1.0	0.0	58.0
26-Jul	0.0	8.0	12.0	1.0	17.0	6.0	44.0
27-Jul	2.0	1.0	28.0	8.0	1.0	0.0	40.0
28-Jul	0.0	1.0	16.0	3.0	1.0	0.0	21.0
29-Jul	2.0	-	10.0	4.0	2.0	0.0	18.0
30-Jul	4.0	2.0	0.0	1.0	-	-	7.0
TOTAL	70.0	174.0	677.0	642.0	503.0	157.0	2,223.0
%	3.1	7.8	30.5	28.9	22.6	7.1	100

Table 4. Mean date of the sockeye salmon run across Anchor Point transect, Upper Cook Inlet offshore test fish project, 1979-2000.

Year	Mean Date ^a	
	Coded	Calendar
1979	18.4	11-Jul
1980	22.7	15-Jul
1981	13.2	6-Jul
1982	24.2	17-Jul
1983	22.6	15-Jul
1984	18.4	11-Jul
1985	22.7	15-Jul
1986	23.0	16-Jul
1987	25.7	18-Jul
1988	20.6	13-Jul
1989	21.6	14-Jul
1990	25.6	18-Jul
1991	24.3	17-Jul
1992	24.3	17-Jul
1993	21.4	14-Jul
1994	26.2	19-Jul
1995	22.1	15-Jul
1996	20.4	13-Jul
1997	23.6	16-Jul
1998	24.9	18-Jul
1999	24.4	18-Jul
2000	19.9	13-Jul
2001	19.7	13-Jul
1979-2000	22.3	15-Jul

^a Day (1) = June 24.

Table 5. Formal estimates of the 2001 total sockeye salmon return to Upper Cook Inlet based on offshore test fish model results (fit of current year's run-timing curve to previous years' curves) using the five best-fits.

Date	Year	MSS	<u>Estimated Total CPUE</u>			Estimated Total Run	Timing	Remaining
			Current	Previous Day	Difference			
7/16	1987	0.00077	3,190	3,280	-90	6,915,698	Late 2 days	4,542,134
	1994	0.00083	3,186	3,252	-66	6,905,662	Late 4 days	4,532,098
	1991	0.00095	2,879	2,978	-99	6,240,674	Late 2 days	3,867,110
	1983	0.00115	2,361	2,417	-57	5,116,819	On Time	2,743,255
	1990	0.00130	4,040	4,329	-289	8,756,912	Late 3 days	6,383,348

Date	Year	MSS	<u>Estimated Total CPUE</u>			Estimated Total Run	Timing	Remaining
			Current	Previous Day	Difference			
7/19	1994	0.00121	2,967	3,033	-66	6,181,145	Late 4 days	3,485,012
	1987	0.00145	2,918	2,999	-81	6,079,634	Late 2 days	3,383,501
	1998	0.00146	2,562	2,593	-31	5,337,447	Late 3 days	2,641,314
	1997	0.00153	2,338	2,370	-32	4,871,395	Late 1 day	2,175,263
	1982	0.00154	2,429	2,458	-29	5,061,417	Late 2 days	2,365,284

Date	Year	MSS	<u>Estimated Total CPUE</u>			Estimated Total Run	Timing	Remaining
			Current	Previous Day	Difference			
7/26	1988	0.00239	1,752	1,755	-3	3,715,404	Early 2 days	481,631
	1984	0.00274	1,572	1,566	6	3,333,076	Early 4 days	99,303
	1985	0.00280	1,966	1,981	-14	4,169,956	On Time	936,183
	2000	0.00283	1,604	1,604	0	3,401,357	Early 2 days	167,584
	1993	0.00297	1,784	1,794	-10	3,784,023	Early 1 day	550,250

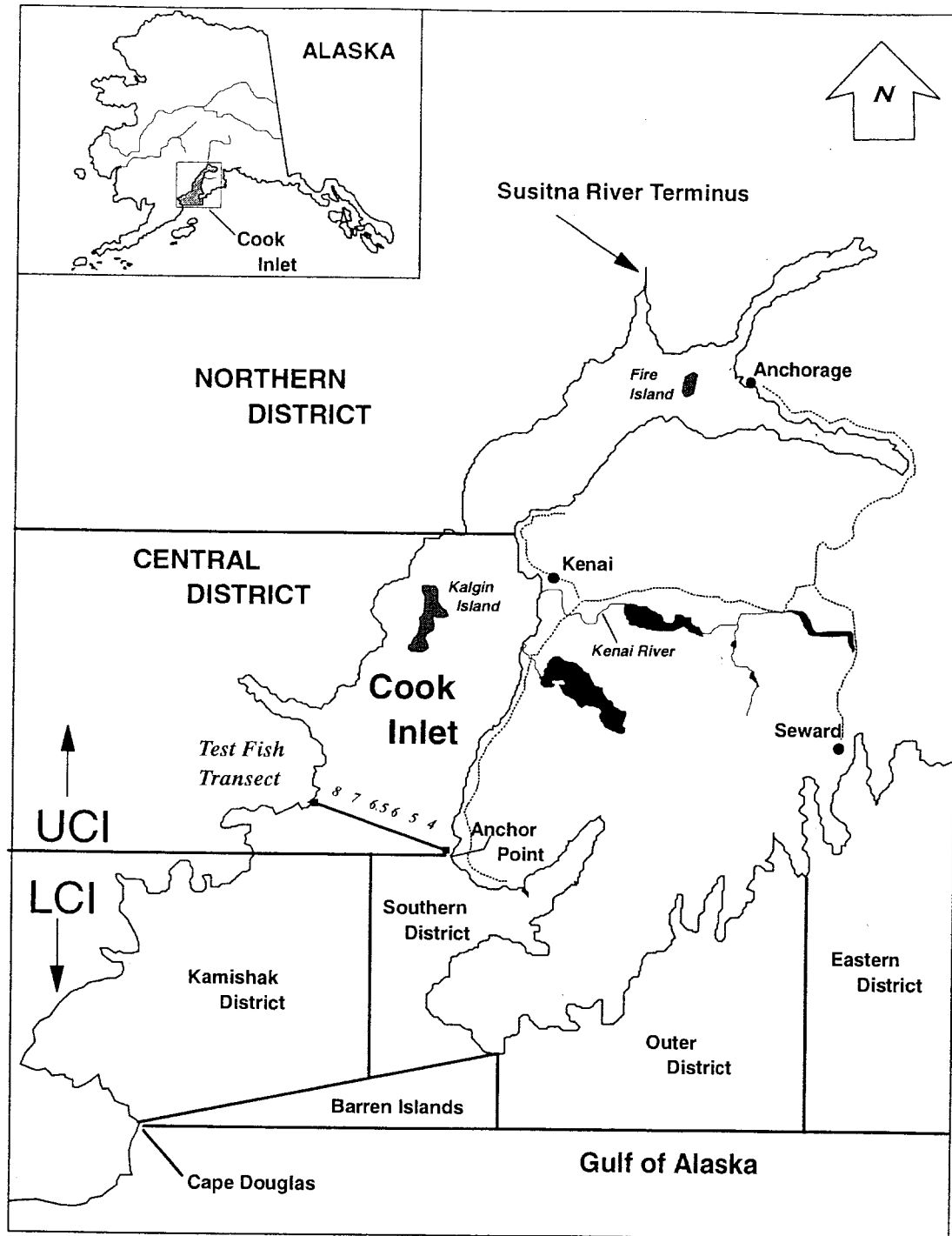


Figure 1. Location of fishing districts and offshore test fish transect in Cook Inlet, Alaska, 2001.

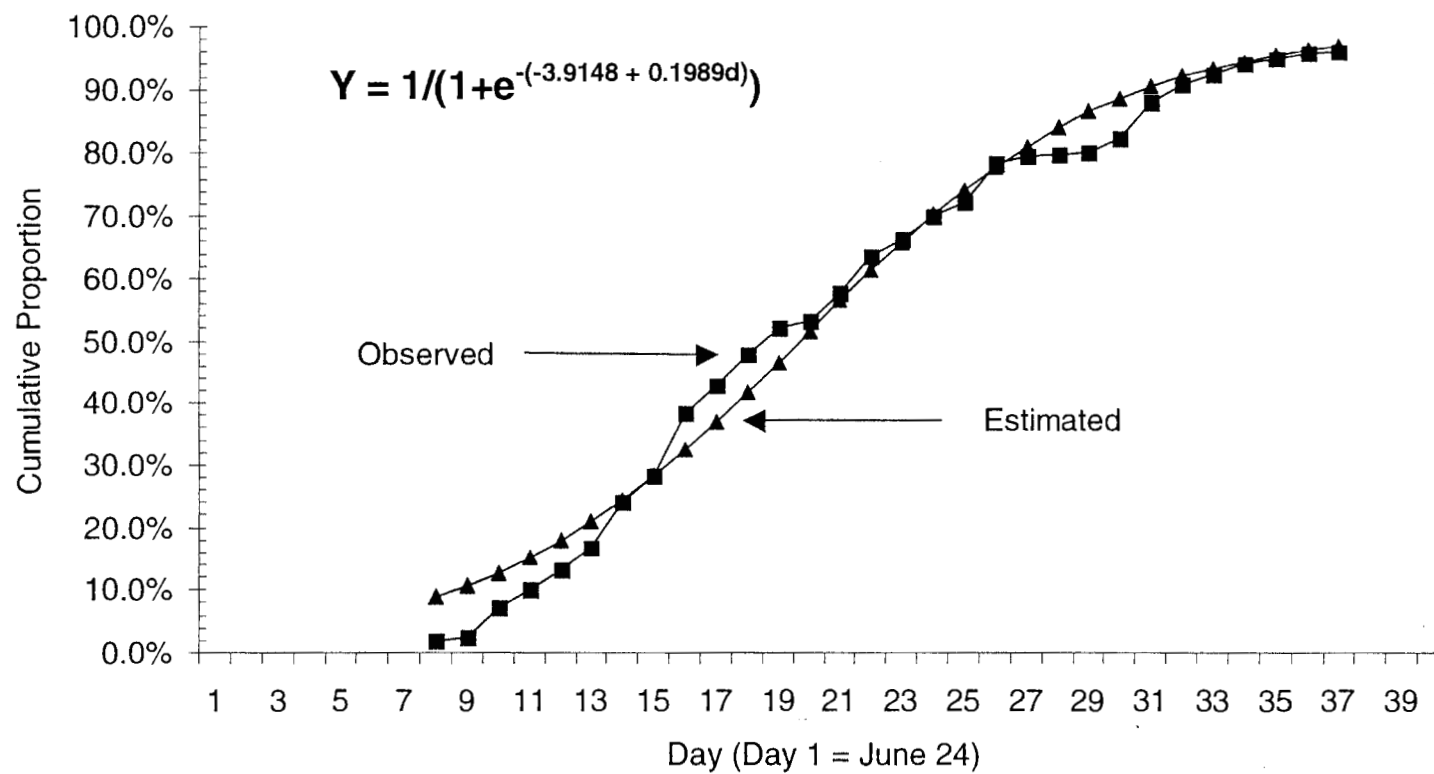


Figure 2. Cumulative proportions estimated for the sockeye salmon return to Upper Cook Inlet, Alaska 2001.

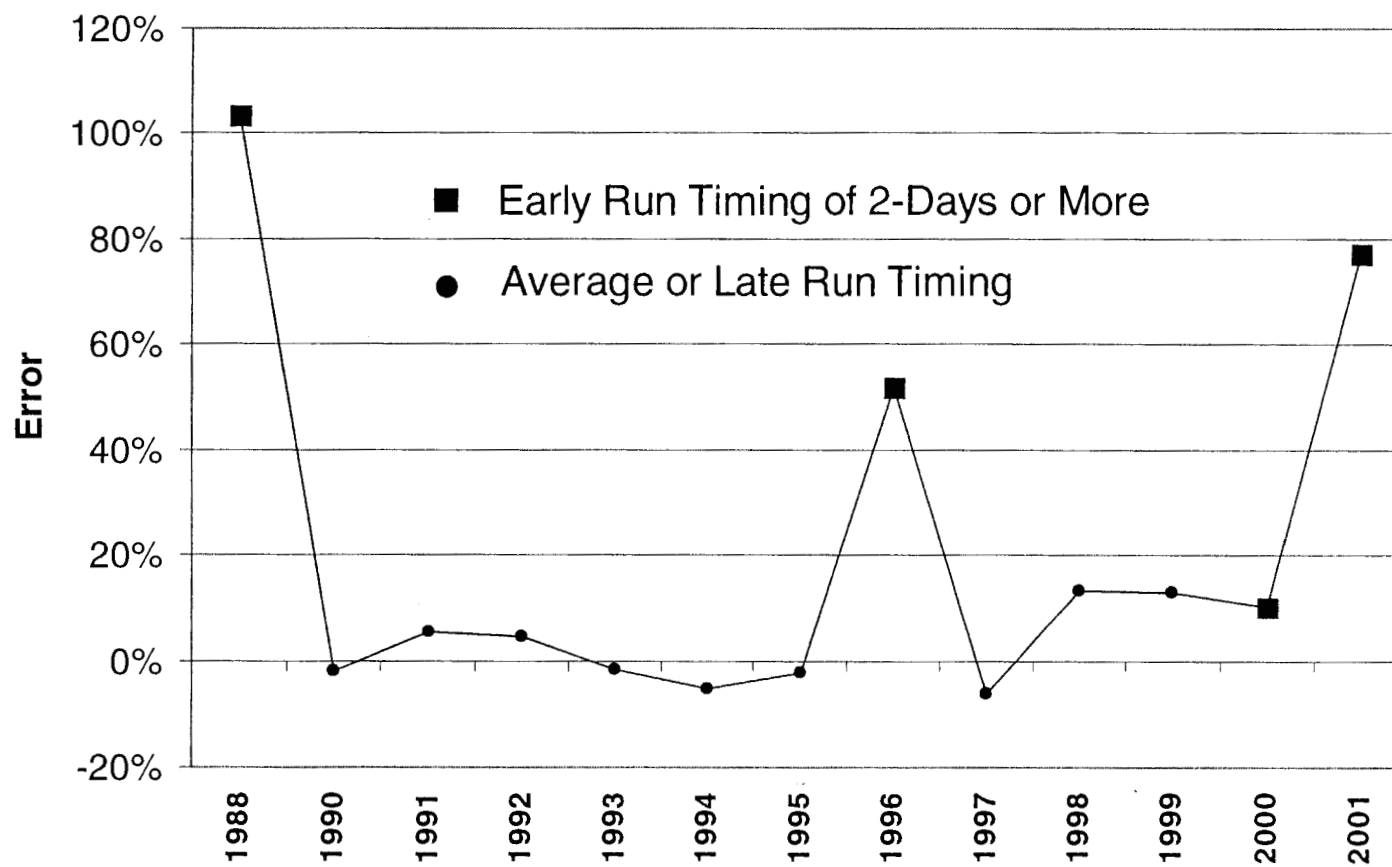


Figure 3. OTF error in forecasting the total return of sockeye salmon to Upper Cook Inlet using the July 20 best fit estimate.

Appendix A1. Summary of pink salmon fishing effort, daily and cumulative catch, and daily and cumulative CPUE, Upper Cook Inlet offshore test fish project, 2001.

Date	Number of Stations	Mean Fishing Time (min)	CATCH		CPUE	
			Daily	Cum	Daily	Cum
1-Jul	6	221.0	3	3	2.4	2.4
2-Jul	6	218.5	1	4	0.8	3.2
3-Jul	6	236.0	1	5	0.8	4.0
4-Jul	6	223.5	0	5	0.0	4.0
5-Jul	6	225.5	2	7	1.5	5.6
6-Jul	6	225.0	3	10	2.2	7.8
7-Jul	6	228.0	4	14	2.6	10.3
8-Jul	6	221.0	11	25	8.8	19.1
9-Jul	6	253.5	7	32	4.7	23.9
10-Jul	6	233.0	7	39	5.5	29.4
11-Jul	6	233.5	12	51	8.4	37.7
12-Jul	6	231.0	10	61	6.6	44.3
13-Jul	6	221.0	14	75	11.2	55.6
14-Jul	6	228.5	20	95	15.2	70.8
15-Jul	6	239.0	27	122	19.3	90.0
16-Jul	6	219.0	8	130	5.9	96.0
17-Jul	6	229.5	34	164	25.4	121.4
18-Jul	6	219.5	5	169	3.9	125.4
19-Jul	5	194.0	14	183	10.8	136.1
20-Jul	6	213.0	2	185	1.7	137.8
21-Jul	6	214.0	0	185	0.0	137.8
22-Jul	6	212.5	2	187	1.6	139.5
23-Jul	6	208.0	7	194	5.2	144.7
24-Jul	6	228.5	22	216	16.5	161.2
25-Jul	6	236.0	19	235	15.2	176.5
26-Jul	6	253.5	20	255	32.5	209.0
27-Jul	6	251.0	12	267	7.5	216.4
28-Jul	6	222.0	7	274	5.3	221.8
29-Jul	5	185.5	7	281	5.6	227.3
30-Jul	4	147.5	2	283	1.6	228.9

Appendix A2. Estimated pink salmon catch by date and station, Upper Cook Inlet offshore test fish project 2001.

Date	Station Number						Total
	4	5	6	6.5	7	8	
1-Jul	0	1	0	0	2	0	3
2-Jul	1	0	0	0	0	0	1
3-Jul	0	1	0	0	0	0	1
4-Jul	0	0	0	0	0	0	0
5-Jul	0	0	0	1	1	0	2
6-Jul	0	0	2	1	0	0	3
7-Jul	0	0	1	2	1	0	4
8-Jul	0	2	3	0	3	3	11
9-Jul	1	1	3	0	2	0	7
10-Jul	1	3	0	1	2	0	7
11-Jul	1	1	7	0	0	3	12
12-Jul	0	0	0	8	2	0	10
13-Jul	2	0	3	4	2	3	14
14-Jul	1	0	0	9	10	0	20
15-Jul	0	0	7	9	9	2	27
16-Jul	0	0	0	5	3	0	8
17-Jul	2	1	7	7	5	12	34
18-Jul	0	1	1	2	1	0	5
19-Jul		0	5	3	5	1	14.0
20-Jul	0	0	0	2	0	0	2
21-Jul	0	0	0	0	0	0	0
22-Jul	1	1	0	0	0	0	2
23-Jul	0	1	4	1	0	1	7
24-Jul	1	5	6	8	2	0	22
25-Jul	1	1	11	1	3	2	19
26-Jul	5	4	3	4	3	1	20
27-Jul	0	0	8	4	0	0	12
28-Jul	0	1	4	1	1	0	7
29-Jul	0		1	5	1	0	7.0
30-Jul	1	1	0	0	---	---	2.0
Total	18	25	76	78	58	28	283
%	6	9	27	28	21	10	100

Appendix A3. Estimated pink salmon CPUE by date and station, Upper Cook Inlet offshore test fish project, 2001.

Date	Station Number						Total
	4	5	6	6.5	7	8	
1-Jul	0.0	0.8	0.0	0.0	1.6	0.0	2.4
2-Jul	0.8	0.0	0.0	0.0	0.0	0.0	0.8
3-Jul	0.0	0.8	0.0	0.0	0.0	0.0	0.8
4-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-Jul	0.0	0.0	0.0	0.7	0.8	0.0	1.5
6-Jul	0.0	0.0	1.4	0.8	0.0	0.0	2.2
7-Jul	0.0	0.0	0.6	1.3	0.7	0.0	2.6
8-Jul	0.0	1.5	2.3	0.0	2.5	2.5	8.8
9-Jul	0.8	0.7	1.8	0.0	1.3	0.0	4.7
10-Jul	0.8	2.4	0.0	0.7	1.5	0.0	5.5
11-Jul	0.8	0.8	4.3	0.0	0.0	2.4	8.4
12-Jul	0.0	0.0	0.0	5.0	1.6	0.0	6.6
13-Jul	1.6	0.0	2.2	3.3	1.6	2.5	11.2
14-Jul	0.8	0.0	0.0	7.3	7.0	0.0	15.2
15-Jul	0.0	0.0	5.5	7.1	5.0	1.6	19.3
16-Jul	0.0	0.0	0.0	3.5	2.4	0.0	5.9
17-Jul	1.8	0.9	5.7	5.4	3.8	7.9	25.4
18-Jul	0.0	0.8	0.8	1.5	0.8	0.0	3.9
19-Jul		0.0	3.7	2.8	3.4	0.7	10.8
20-Jul	0.0	0.0	0.0	1.7	0.0	0.0	1.7
21-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Jul	0.8	0.8	0.0	0.0	0.0	0.0	1.6
23-Jul	0.0	0.8	2.8	0.8	0.0	0.8	5.2
24-Jul	0.8	3.9	4.5	5.7	1.6	0.0	16.5
25-Jul	0.8	0.7	8.7	0.8	2.5	1.7	15.2
26-Jul	4.2	2.7	20.2	2.7	1.9	0.8	32.5
27-Jul	0.0	0.0	5.3	2.2	0.0	0.0	7.5
28-Jul	0.0	0.8	2.9	0.8	0.8	0.0	5.3
29-Jul	0.0		0.8	4.0	0.8	0.0	5.6
30-Jul	0.8	0.8	0.0	0.0	---	---	1.6
Total	15.0	19.3	73.6	58.2	41.9	20.9	228.9
%	6.5	8.4	32.2	25.4	18.3	9.1	100.0

Appendix B1. Summary of chum salmon fishing effort, daily and cumulative catch, and daily and cumulative CPUE, Upper Cook Inlet offshore test fish project, 2001.

Date	Number of Stations	Mean Fishing Time (min)	CATCH		CPUE	
			Daily	Cum	Daily	Cum
1-Jul	6	221.0	1	1	0.8	0.8
2-Jul	6	218.5	1	2	0.8	1.6
3-Jul	6	236.0	10	12	6.9	8.6
4-Jul	6	223.5	2	14	1.5	10.1
5-Jul	6	225.5	11	25	8.2	18.3
6-Jul	6	225.0	11	36	7.8	26.1
7-Jul	6	228.0	101	137	64.7	90.8
8-Jul	6	221.0	48	185	37.9	128.7
9-Jul	6	253.5	49	234	31.5	160.2
10-Jul	6	233.0	80	314	58.3	218.5
11-Jul	6	233.5	48	362	32.7	251.2
12-Jul	6	231.0	8	370	5.7	256.9
13-Jul	6	221.0	8	378	6.4	263.3
14-Jul	6	228.5	27	405	19.8	283.1
15-Jul	6	239.0	78	483	45.4	328.5
16-Jul	6	219.0	7	490	5.2	333.7
17-Jul	6	229.5	52	542	36.6	370.3
18-Jul	6	219.5	17	559	13.2	383.5
19-Jul	5	194.0	50	609	38.7	422.2
20-Jul	6	213.0	2	611	1.7	423.8
21-Jul	6	214.0	0	611	0.0	423.8
22-Jul	6	212.5	1	612	0.8	424.7
23-Jul	6	208.0	35	647	29.6	454.3
24-Jul	6	228.5	40	687	29.9	484.2
25-Jul	6	236.0	26	713	19.8	504.0
26-Jul	6	253.5	85	798	56.4	560.4
27-Jul	6	251.0	68	866	42.5	602.9
28-Jul	6	222.0	31	897	23.7	626.6
29-Jul	5	185.5	22	919	17.5	644.1
30-Jul	4	147.5	14	933	11.0	655.2

Appendix B2. Estimated pink salmon catch by date and station, Upper Cook Inlet offshore test fish project 2001.

Date	Station Number						Total
	4	5	6	6.5	7	8	
1-Jul	0	1	0	0	0	0	1
2-Jul	0	0	0	0	1	0	1
3-Jul	0	0	5	4	1	0	10
4-Jul	0	0	2	0	0	0	2
5-Jul	2	1	1	7	0	0	11
6-Jul	0	0	10	0	1	0	11
7-Jul	0	0	36	46	19	0	101
8-Jul	0	1	28	15	4	0	48
9-Jul	0	4	34	5	5	1	49
10-Jul	0	2	22	36	19	1	80
11-Jul	0	3	32	4	8	1	48
12-Jul	0	0	0	4	4	0	8
13-Jul	0	0	1	1	6	0	8
14-Jul	3	0	0	2	6	16	27
15-Jul	0	0	1	2	71	4	78
16-Jul	0	2	0	5	0	0	7
17-Jul	0	0	2	6	13	31	52
18-Jul	0	10	0	6	1	0	17
19-Jul		2	8	13	24	3	50
20-Jul	1	0	1	0	0	0	2
21-Jul	0	0	0	0	0	0	0
22-Jul	0	0	0	1	0	0	1
23-Jul	0	2	21	6	5	1	35
24-Jul	0	12	11	15	2	0	40
25-Jul	0	4	18	3	0	1	26
26-Jul	0	20	23	9	31	2	85
27-Jul	1	4	25	33	3	2	68
28-Jul	1	0	25	3	2	0	31
29-Jul	0		3	16	3	0	22
30-Jul	3	9	0	2			14
Total	11	77	309	244	229	63	933
%	1.2	8.3	33.1	26.2	24.5	6.8	100.0

Appendix B3. Estimated chum salmon CPUE by date and station, Upper Cook Inlet offshore test fish project, 2001.

Date	Station Number						Total
	4	5	6	6.5	7	8	
1-Jul	0.0	0.8	0.0	0.0	0.0	0.0	0.8
2-Jul	0.0	0.0	0.0	0.0	0.8	0.0	0.8
3-Jul	0.0	0.0	3.4	2.7	0.8	0.0	6.9
4-Jul	0.0	0.0	1.5	0.0	0.0	0.0	1.5
5-Jul	1.6	0.8	0.8	4.9	0.0	0.0	8.2
6-Jul	0.0	0.0	7.1	0.0	0.8	0.0	7.8
7-Jul	0.0	0.0	22.3	29.0	13.4	0.0	64.7
8-Jul	0.0	0.8	21.5	12.3	3.3	0.0	37.9
9-Jul	0.0	3.0	21.0	3.3	3.4	0.8	31.5
10-Jul	0.0	1.6	15.9	25.7	14.2	0.8	58.3
11-Jul	0.0	2.4	19.8	3.2	6.4	0.8	32.7
12-Jul	0.0	0.0	0.0	2.5	3.2	0.0	5.7
13-Jul	0.0	0.0	0.7	0.8	4.9	0.0	6.4
14-Jul	2.5	0.0	0.0	1.6	4.2	11.4	19.8
15-Jul	0.0	0.0	0.8	1.6	39.8	3.2	45.4
16-Jul	0.0	1.7	0.0	3.5	0.0	0.0	5.2
17-Jul	0.0	0.0	1.6	4.7	9.9	20.4	36.6
18-Jul	0.0	7.8	0.0	4.5	0.8	0.0	13.2
19-Jul	---	1.6	6.0	12.4	16.5	2.2	38.7
20-Jul	0.8	0.0	0.8	0.0	0.0	0.0	1.7
21-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Jul	0.0	0.0	0.0	0.8	0.0	0.0	0.8
23-Jul	0.0	1.7	14.6	4.8	7.7	0.8	29.6
24-Jul	0.0	9.3	8.2	10.7	1.6	0.0	29.9
25-Jul	0.0	3.0	13.7	2.3	0.0	0.8	19.8
26-Jul	0.0	13.3	15.5	6.2	19.8	1.6	56.4
27-Jul	0.8	3.2	16.5	18.1	2.2	1.6	42.5
28-Jul	1.7	0.0	17.9	2.5	1.7	0.0	23.7
29-Jul	0.0	---	2.3	12.8	2.4	0.0	17.5
30-Jul	2.5	6.9	0.0	1.7	---	---	11.0
Total	10.0	58.0	212.0	172.8	157.9	44.5	655.2
%	1.5	8.8	32.4	26.4	24.1	6.8	100.0

Appendix C1. Summary of coho salmon fishing effort, daily and cumulative catch, and daily and cumulative CPUE, Upper Cook Inlet offshore test fish project, 2001.

Date	Number of Stations	Mean Fishing Time (min)	CATCH		CPUE	
			Daily	Cum	Daily	Cum
1-Jul	6	221.0	1	1	0.8	0.8
2-Jul	6	218.5	0	1	0.0	0.8
3-Jul	6	236.0	2	3	1.4	2.2
4-Jul	6	223.5	0	3	0.0	2.2
5-Jul	6	225.5	4	7	3.3	5.5
6-Jul	6	225.0	1	8	0.8	6.3
7-Jul	6	228.0	6	14	3.8	10.1
8-Jul	6	221.0	10	24	8.1	18.2
9-Jul	6	253.5	14	38	9.2	27.4
10-Jul	6	233.0	11	49	7.9	35.3
11-Jul	6	233.5	20	69	14.8	50.2
12-Jul	6	231.0	6	75	4.0	54.1
13-Jul	6	221.0	9	84	7.1	61.2
14-Jul	6	228.5	19	103	13.7	75.0
15-Jul	6	239.0	40	143	24.1	99.1
16-Jul	6	219.0	3	146	2.3	101.4
17-Jul	6	229.5	48	194	34.4	135.7
18-Jul	6	219.5	23	217	18.3	154.1
19-Jul	5	194.0	61	278	48.4	202.5
20-Jul	6	213.0	2	280	1.7	204.2
21-Jul	6	214.0	2	282	1.7	205.8
22-Jul	6	212.5	0	282	0.0	205.8
23-Jul	6	208.0	31	313	24.7	230.6
24-Jul	6	228.5	33	346	24.9	255.5
25-Jul	6	236.0	113	459	88.3	343.7
26-Jul	6	253.5	350	809	233.2	576.9
27-Jul	6	251.0	315	1124	195.1	772.0
28-Jul	6	222.0	32	1156	24.3	796.3
29-Jul	5	185.5	26	1182	20.8	817.1
30-Jul	4	147.5	27	1209	21.3	838.4

Appendix C2. Estimated coho salmon catch by date and station, Upper Cook Inlet offshore test fish project 2001.

Date	Station Number						Total
	4	5	6	6.5	7	8	
1-Jul	0	0	1	0	0	0	1
2-Jul	0	0	0	0	0	0	0
3-Jul	0	0	0	2	0	0	2
4-Jul	0	0	0	0	0	0	0
5-Jul	3	1	0	0	0	0	4
6-Jul	0	0	0	1	0	0	1
7-Jul	0	0	3	2	1	0	6
8-Jul	0	2	0	6	2	0	10
9-Jul	0	3	7	2	2	0	14
10-Jul	0	0	3	7	1	0	11
11-Jul	1	1	7	6	1	4	20
12-Jul	1	0	0	5	0	0	6
13-Jul	0	0	3	3	3	0	9
14-Jul	0	1	0	1	5	12	19
15-Jul	1	1	0	4	33	1	40
16-Jul	1	0	0	2	0	0	3
17-Jul	0	1	1	15	6	25	48
18-Jul	0	13	7	1	2	0	23
19-Jul		9	7	15	15	15	61
20-Jul	0	0	0	2	0	0	2
21-Jul	0	0	1	0	1	0	2
22-Jul	0	0	0	0	0	0	0
23-Jul	0	0	9	8	1	13	31
24-Jul	0	4	15	8	6	0	33
25-Jul	0	30	43	35	2	3	113
26-Jul	0	77	68	82	116	7	350
27-Jul	0	10	71	179	41	14	315
28-Jul	0	4	18	9	1	0	32
29-Jul	1		5	14	3	3	26
30-Jul	1	19	2	5			27
Total	9.0	176.0	271.0	414.0	242.0	97.0	1209.0
%	0.7	14.6	22.4	34.2	20.0	8.0	100.0

Appendix C3. Estimated coho salmon CPUE by date and station, Upper Cook Inlet offshore test fish project, 2001.

Date	Station Number						Total
	4	5	6	6.5	7	8	
1-Jul	0.0	0.0	0.8	0.0	0.0	0.0	0.8
2-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-Jul	0.0	0.0	0.0	1.4	0.0	0.0	1.4
4-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-Jul	2.5	0.8	0.0	0.0	0.0	0.0	3.3
6-Jul	0.0	0.0	0.0	0.8	0.0	0.0	0.8
7-Jul	0.0	0.0	1.8	1.3	0.7	0.0	3.8
8-Jul	0.0	1.5	0.0	4.9	1.6	0.0	8.1
9-Jul	0.0	2.2	4.3	1.3	1.3	0.0	9.2
10-Jul	0.0	0.0	2.2	5.0	0.7	0.0	7.9
11-Jul	0.8	0.8	4.3	4.9	0.8	3.2	14.8
12-Jul	0.8	0.0	0.0	3.1	0.0	0.0	4.0
13-Jul	0.0	0.0	2.2	2.5	2.4	0.0	7.1
14-Jul	0.0	0.8	0.0	0.8	3.5	8.6	13.7
15-Jul	0.8	0.8	0.0	3.1	18.5	0.8	24.1
16-Jul	0.8	0.0	0.0	1.4	0.0	0.0	2.3
17-Jul	0.0	0.9	0.8	11.7	4.5	16.5	34.4
18-Jul	0.0	10.1	5.7	0.8	1.7	0.0	18.3
19-Jul	---	7.2	5.7	14.3	10.3	10.8	48.4
20-Jul	0.0	0.0	0.0	1.7	0.0	0.0	1.7
21-Jul	0.0	0.0	0.8	0.0	0.8	0.0	1.7
22-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Jul	0.0	0.0	6.3	6.4	1.5	10.5	24.7
24-Jul	0.0	3.1	11.2	5.7	4.8	0.0	24.9
25-Jul	0.0	22.8	34.0	27.3	1.7	2.5	88.3
26-Jul	0.0	51.3	45.8	56.5	74.0	5.6	233.2
27-Jul	0.0	7.9	46.8	98.4	30.7	11.2	195.1
28-Jul	0.0	3.2	12.9	7.4	0.8	0.0	24.3
29-Jul	0.8	---	3.9	11.2	2.4	2.5	20.8
30-Jul	0.8	14.6	1.7	4.2	---	---	21.3
Total	7.5	128.2	191.5	275.9	163.1	72.2	838.4
%	0.9	15.3	22.8	32.9	19.5	8.6	100.0

Appendix D1. Summary of chinook salmon fishing effort, daily and cumulative catch, and daily and cumulative CPUE, Upper Cook Inlet offshore test fish project, 2001.

Date	Number of Stations	Mean Fishing Time (min)	CATCH		CPUE	
			Daily	Cum	Daily	Cum
1-Jul	6	221.0	2	2	1.7	1.7
2-Jul	6	218.5	0	2	0.0	1.7
3-Jul	6	236.0	2	4	1.4	3.0
4-Jul	6	223.5	1	5	0.8	3.9
5-Jul	6	225.5	0	5	0.0	3.9
6-Jul	6	225.0	0	5	0.0	3.9
7-Jul	6	228.0	0	5	0.0	3.9
8-Jul	6	221.0	1	6	0.8	4.7
9-Jul	6	253.5	0	6	0.0	4.7
10-Jul	6	233.0	0	6	0.0	4.7
11-Jul	6	233.5	4	10	3.0	7.7
12-Jul	6	231.0	0	10	0.0	7.7
13-Jul	6	221.0	0	10	0.0	7.7
14-Jul	6	228.5	0	10	0.0	7.7
15-Jul	6	239.0	0	10	0.0	7.7
16-Jul	6	219.0	0	10	0.0	7.7
17-Jul	6	229.5	0	10	0.0	7.7
18-Jul	6	219.5	0	10	0.0	7.7
19-Jul	5	194.0	0	10	0.0	7.7
20-Jul	6	213.0	0	10	0.0	7.7
21-Jul	6	214.0	0	10	0.0	7.7
22-Jul	6	212.5	0	10	0.0	7.7
23-Jul	6	208.0	0	10	0.0	7.7
24-Jul	6	228.5	0	10	0.0	7.7
25-Jul	6	236.0	0	10	0.0	7.7
26-Jul	6	253.5	0	10	0.0	7.7
27-Jul	6	251.0	0	10	0.0	7.7
28-Jul	6	222.0	1	11	0.7	8.4
29-Jul	5	185.5	0	11	0.0	8.4
30-Jul	4	147.5	0	11	0.0	8.4

Appendix D2. Estimated chinook salmon catch by date and station, Upper Cook Inlet offshore test fish project 2001.

Date	Station Number						Total
	4	5	6	6.5	7	8	
1-Jul	0	0	2	0	0	0	2
2-Jul	0	0	0	0	0	0	0
3-Jul	0	0	1	1	0	0	2
4-Jul	0	0	0	0	1	0	1
5-Jul	0	0	0	0	0	0	0
6-Jul	0	0	0	0	0	0	0
7-Jul	0	0	0	0	0	0	0
8-Jul	0	0	0	0	1	0	1
9-Jul	0	0	0	0	0	0	0
10-Jul	0	0	0	0	0	0	0
11-Jul	0	0	1	1	2	0	4
12-Jul	0	0	0	0	0	0	0
13-Jul	0	0	0	0	0	0	0
14-Jul	0	0	0	0	0	0	0
15-Jul	0	0	0	0	0	0	0
16-Jul	0	0	0	0	0	0	0
17-Jul	0	0	0	0	0	0	0
18-Jul	0	0	0	0	0	0	0
19-Jul		0	0	0	0	0	0
20-Jul	0	0	0	0	0	0	0
21-Jul	0	0	0	0	0	0	0
22-Jul	0	0	0	0	0	0	0
23-Jul	0	0	0	0	0	0	0
24-Jul	0	0	0	0	0	0	0
25-Jul	0	0	0	0	0	0	0
26-Jul	0	0	0	0	0	0	0
27-Jul	0	0	0	0	0	0	0
28-Jul	0	0	1	0	0	0	1
29-Jul	0		0	0	0	0	0
30-Jul	0	0	0	0			0
Total	0.0	0.0	5.0	2.0	4.0	0.0	11.0
%	0.0	0.0	45.5	18.2	36.4	0.0	100.0

Appendix D3. Estimated chinook salmon CPUE by date and station, Upper Cook Inlet offshore test fish project, 2001.

Date	Station Number						Total
	4	5	6	6.5	7	8	
1-Jul	0.0	0.0	1.7	0.0	0.0	0.0	1.7
2-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-Jul	0.0	0.0	0.7	0.7	0.0	0.0	1.4
4-Jul	0.0	0.0	0.0	0.0	0.8	0.0	0.8
5-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8-Jul	0.0	0.0	0.0	0.0	0.8	0.0	0.8
9-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11-Jul	0.0	0.0	0.6	0.8	1.6	0.0	3.0
12-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Jul		0.0	0.0	0.0	0.0	0.0	0.0
20-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27-Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Jul	0.0	0.0	0.7	0.0	0.0	0.0	0.7
29-Jul	0.0		0.0	0.0	0.0	0.0	0.0
30-Jul	0.0	0.0	0.0	0.0			0.0
Total	0.0	0.0	3.7	1.5	3.3	0.0	8.4
%	0.0	0.0	43.6	17.7	38.7	0.0	100.0

Appendix E1. Entry pattern of sockeye salmon into Upper Cook Inlet, Alaska, 2001
estimated from daily CPUE measured at the latitude of Anchor Point.

Day	Date	Input y	Estimated y	Residual	Change in Input Y	Change in estimated Y
8	1-Jul	0.0186	0.0892	-0.0706		
9	2-Jul	0.0261	0.1067	-0.0806	0.0075	0.0175
10	3-Jul	0.0716	0.1272	-0.0556	0.0455	0.0205
11	4-Jul	0.1010	0.1509	-0.0500	0.0293	0.0238
12	5-Jul	0.1325	0.1782	-0.0457	0.0315	0.0273
13	6-Jul	0.1686	0.2092	-0.0406	0.0362	0.0310
14	7-Jul	0.2412	0.2440	-0.0028	0.0725	0.0348
15	8-Jul	0.2818	0.2825	-0.0007	0.0406	0.0385
16	9-Jul	0.3829	0.3245	0.0584	0.1011	0.0420
17	10-Jul	0.4284	0.3695	0.0589	0.0455	0.0450
18	11-Jul	0.4789	0.4169	0.0620	0.0505	0.0474
19	12-Jul	0.5213	0.4659	0.0554	0.0424	0.0490
20	13-Jul	0.5319	0.5156	0.0164	0.0106	0.0497
21	14-Jul	0.5764	0.5649	0.0114	0.0444	0.0494
22	15-Jul	0.6366	0.6130	0.0236	0.0602	0.0481
23	16-Jul	0.6643	0.6590	0.0053	0.0277	0.0460
24	17-Jul	0.7001	0.7022	-0.0021	0.0358	0.0432
25	18-Jul	0.7231	0.7421	-0.0189	0.0230	0.0399
26	19-Jul	0.7845	0.7783	0.0062	0.0614	0.0362
27	20-Jul	0.7961	0.8107	-0.0145	0.0117	0.0324
28	21-Jul	0.7987	0.8393	-0.0406	0.0026	0.0287
29	22-Jul	0.8012	0.8644	-0.0631	0.0025	0.0250
30	23-Jul	0.8238	0.8860	-0.0623	0.0225	0.0217
31	24-Jul	0.8790	0.9046	-0.0256	0.0552	0.0186
32	25-Jul	0.9067	0.9205	-0.0138	0.0277	0.0158
33	26-Jul	0.9247	0.9339	-0.0092	0.0180	0.0134
34	27-Jul	0.9405	0.9451	-0.0046	0.0158	0.0113
35	28-Jul	0.9499	0.9546	-0.0046	0.0094	0.0094
36	29-Jul	0.9586	0.9625	-0.0039	0.0087	0.0079
37	30-Jul	0.9620	0.9690	-0.0070	0.0034	0.0066

Appendix F. Chemical and physical observations made in Upper Cook Inlet, Alaska during the conduct of the 2001 offshore test fish project.

Date	Station	Air Temp (c)	Water Temp (c)	Wind Vel. (knots)	Wind Dir	Tide Stage	Salinity (ppt)	Water Depth (f)	Secchi (m)
1-Jul	4	18	10	10	south	flood	30.7	24.2	4.5
	5	15	11	10	south	flood	30.1	37	4.5
	6	14	12	5	southwest	flood	29	45	3
	6.5	15	11	8	south	flood	29.1	42	3
	7	15	12	8	south	flood	28.9	45.8	3
	8	14	11	10	south	high	29.8	31	3
2-Jul	8	13	11	18	southeast	ebb	29.8	29	3
	7	13	11	20	southeast	ebb	30	44	3
	6.5	14	11	20	southeast	ebb	29.6	41	3
	6	15	11	20	southeast	flood	29	46	3.5
	5	16	11	18	southeast	flood	30.3	32	4
	4	15	10	20	southeast	flood	31.3	25	8
3-Jul	4	15	10	10	north	flood	31.3	24	6
	5	15	10	10	north	flood	31.2	37	5
	6	14	10	12	north	flood	30.8	47	5
	6.5	15	10	10	northwest	flood	31.3	42	5
	7	15	11	5	north	high	30	44	3
	8	14	10	0	none	ebb	30.3	30	2.5
4-Jul	8	13	11	0	none	ebb	30	28	3.5
	7	13	11	0	none	ebb	29.9	42	3
	6.5	14	11	0	none	ebb	29.6	42	3
	6	14	11	0	none	ebb	30.1	45	3.5
	5	14	10	0	none	low	31.2	37	5
	4	15	10	0	none	flood	31.3	24	8
5-Jul	4	14	10	20	northwest	low	31.4	24	4
	5	14	10	18	northwest	flood	31.4	36	5
	6	14	10	16	northwest	flood	31.1	46	5
	6.5	15	10	15	northwest	flood	31	42	4.5
	7	16	11	5	northwest	flood	30.3	45	3
	8	16	11	0	none	flood	29.9	32	4
6-Jul	8	13	11	8	southwest	high	29.7	31	2.5
	7	12	11	0	none	ebb	30.1	45	3.5
	6.5	13	10	2	southwest	ebb	30.3	42	3.5
	6	15	11	3	southwest	flood	29.7	45	4
	5	16	11	10	south	ebb	30	35	4
	4	16	10	10	south	ebb	31.4	23	7

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Appendix F. (p 2 of 5)

Date	Station	Air Temp (c)	Water Temp (c)	Wind Vel. (knots)	Wind Dir	Tide Stage	Salinity (ppt)	Water Depth (f)	Secchi (m)
7-Jul	4	12	9	0	none	ebb	31.9	25	10
	5	16	9	5	southeast	ebb	31.7	34	7
	6	16	12	5	southeast	ebb	28.7	45	2.5
	6.5	16	12	5	southeast	low	29.1	41	3
	7	19	12	5	southeast	flood	28.2	42	2.5
	8	19	12	2	southeast	flood	28.9	31	2
8-Jul	8	12	11	10	south	high	29.8	30	3
	7	12	11	15	south	ebb	29.9	45	3
	6.5	13	11	10	south	ebb	30.3	44	3.5
	6	14	11	5	south	ebb	29.9	44	4
	5	15	10	15	south	ebb	30.9	35	6
	4	18	9	0	none	ebb	31.9	23	9
9-Jul	4	15	10	5	south	ebb	31.8	22	8
	5	18	11	4	southeast	ebb	29.8	37	4
	6	19	12	5	southeast	ebb	28.1	45	3
	6.5	18	12	5	southeast	flood	28.2	42	3
	7	18	12	3	southeast	flood	28.3	42	3
	8	18	11	0	none	flood	29.4	29	2.5
10-Jul	8	10	11	10	southwest	flood	29.7	29	3
	7	14	11	10	west	high	29.2	43	4
	6.5	14	11	10	west	ebb	29.8	43	3.5
	6	15	11	10	southwest	ebb	30	46	4
	5	15	11	0	none	ebb	30.3	34	4
	4	15	10	0	none	ebb	31.9	24	9
11-Jul	4	11	9	10	northwest	high	32.1	25	10
	5	11	9	10	northwest	ebb	32	35	8
	6	13	11	12	northwest	ebb	29.5	47	4
	6.5	15	12	13	northwest	ebb	29.2	42	4
	7	15	11	15	northwest	ebb	29.4	42	3
	8	15	12	15	northwest	ebb	28.8	31	3
12-Jul	8	12	11	25	northeast	ebb	29.1	29	2.5
	7	12	11	25	northeast	low	29.9	44	3
	6.5	11	10	25	northwest	flood	31.2	43	5
	6	12	10	2	northwest	flood	31.8	48	7
	5	12	10	25	north	flood	31.2	38	7
	4	12	10	25	north	ebb	31.7	24	9

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Appendix F. (p 3 of 5)

Date	Station	Air Temp (c)	Water Temp (c)	Wind Vel. (knots)	Wind Dir	Tide Stage	Salinity (ppt)	Water Depth (f)	Secchi (m)
13-Jul	4	10	10	12	northwest	high	31.7	24	10
	5	11	9	10	northwest	ebb	31.9	36	9
	6	12	11	10	northwest	ebb	30.2	45	5
	6.5	12	12	0	none	ebb	29.2	41	6
	7	12	11	0	none	ebb	29.4	43	4
	8	15	12	0	none	low	27.7	28	4
14-Jul	8	15	12	10	south	ebb	26.6	29	4
	7	12	13	10	south	ebb	26	43	4
	6.5	13	12	5	south	flood	27.9	43	4
	6	14	9	0	none	flood	32.1	48	13
	5	12	9	0	none	flood	29.8	37	14
15-Jul	4	12	9	0	none	flood	31.8	24	14
	4	10	9.6	15	northwest	flood	31.5	23	10
	5	10	9.4	15	northwest	flood	31.8	36	10
	6	10	9.3	15	northwest	flood	31.8	47	8
	6.5	12	12.6	15	northwest	high	27	43	4.5
	7	12	12.9	15	northwest	ebb	26.2	44	4
16-Jul	8	12	12.7	12	northwest	ebb	26.3	29	4
	8	10	13.0	4	north	ebb	25.5	28	4
	7	10	13.0	5	north	ebb	25.4	44	4.5
	6.5	10	10.9	10	northwest	ebb	30	42	5.5
	6	11	9.6	7	northwest	low	31.6	48	10
	5	10	9.7	8	northwest	flood	31.6	38	11
17-Jul	4	10	9.4	5	northwest	flood	31.8	24	13
	4	13	9.7	15	southeast	high	31.7	23	10
	5	13	9.7	15	southeast	flood	31.7	35	10
	6	14	12.8	13	southeast	flood	25.7	42	5
	6.5	13	13.3	15	southeast	flood	25.1	43	4
	7	13	13.3	15	southeast	flood	25.5	45	4
18-Jul	8	14	13.0	18	southeast	flood	26.5	31	4
	8	12	12	10	southwest	ebb	28.1	29	4
	7	13	12	5	southeast	ebb	27.3	43	4.5
	6.5	13	12.8	5	southeast	ebb	26.2	41	4.5
	6	13	10	5	southeast	ebb	31	45	7
	5	15	10	0	none	flood	31.6	42	10
	4	15	10	0	none	flood	31.9	24	11

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Appendix F. (p 4 of 5)

Date	Station	Air Temp (c)	Water Temp (c)	Wind Vel. (knots)	Wind Dir	Tide Stage	Salinity (ppt)	Water Depth (f)	Secchi (m)
19-Jul	5	10	10	25	southeast	flood	31.7	36	10
	6	10	9	25	southeast	flood	31.6	48	7
	6.5	11	9	15	northwest	flood	31.6	47	5
	7	14	11	12	northeast	flood	29.6	44	4
	8	12	11	10	northwest	flood	29	31	3.5
20-Jul	8	10	12	0	none	ebb	28.4	32	3.5
	7	11	12	0	none	ebb	28.3	43	3.5
	6.5	12	11	0	none	ebb	28.7	43	4
	6	12	12	0	none	ebb	28.7	45	4
	5	12	10	0	none	ebb	31.8	34	9
21-Jul	4	12	10	4	northwest	low	31.9	22	10
	4	12	10	0	none	ebb	31.9	22	8
	5	12	10	0	none	ebb	31.7	35	7
	6	12	10	0	none	ebb	31.1	44	5
	6.5	11	10	0	none	low	30.8	43	4
22-Jul	7	12	10	0	none	flood	30.6	43	3
	8	11	11	8	northwest	flood	29.5	31	2.5
	8	10	11	0	none	high	28.9	30	3
	7	11	11	0	none	ebb	29.2	45	4
	6.5	11	11	0	none	ebb	28.8	44	3.5
23-Jul	6	11	11	0	none	ebb	29	45	4
	5	11	10	0	none	ebb	30.3	32	5
	4	11	10	0	none	low	31.8	23	9
	4	10	10	20	southeast	ebb	31.6	22	6
	5	11	11	20	southeast	ebb	30.3	32	5
24-Jul	6	12	11	20	southeast	ebb	30.6	47	4
	6.5	12	10	18	southeast	flood	30.6	44	4
	7	11	11	15	southeast	flood	30.5	44	3
	8	11	11	15	southeast	flood	29.4	31	2.5
	8	10	10	0	none	flood	30.2	29	3
	7	13	10	10	southeast	flood	30.3	43	4
	6.5	11	10	13	southwest	high	30.3	45	5
	6	11	10	12	southwest	ebb	30.7	46	5
	5	12	10	15	southwest	ebb	31.2	34	7
	4	11	10	10	southwest	ebb	31.6	22	7

-continued-

Appendix F. (p 5 of 5)

Date	Station	Air Temp (c)	Water Temp (c)	Wind Vel. (knots)	Wind Dir	Tide Stage	Salinity (ppt)	Water Depth (f)	Secchi (m)
25-Jul	4	10	10	20	south	high	31.5	25	7
	5	10	10	18	south	ebb	31.2	36	5
	6	10	11	18	south	ebb	30.9	48	4
	6.5	15	11	18	south	ebb	29.6	41	3.5
	7	19	11	10	south	ebb	29.9	43	4
	8	15	11	10	south	low	29.7	3	2.5
26-Jul	8	10	11	15	southeast	flood	29.4	29	3
	7	10	11	10	southeast	flood	30.3	45	3.5
	6.5	12	10	12	southeast	flood	30.8	45	4.5
	6	12	10	10	southeast	high	30.8	48	5
	5	12	10	10	southeast	ebb	30.9	32	7
	4	15	10	18	southeast	ebb	31.6	20	10
27-Jul	4	12	10	18	south	flood	31.6	24	8
	5	12	10	18	south	flood	31.3	35	7
	6	12	11	18	south	high	30.4	47	5
	6.5	13	12	20	south	ebb	29.7	41	3
	7	13	11	20	south	ebb	29.6	43	3
	8	14	11	20	south	ebb	29.8	28	2.5
28-Jul	8	10	11	20	southwest	ebb	29.7	29	2.5
	7	10	12	20	southwest	low	28.7	43	4
	6.5	11	12	20	southwest	flood	28.7	43	4
	6	12	11	18	southwest	flood	30.2	48	5
	5	12	11	20	south	flood	29.6	37	5
	4	12	10	25	southwest	flood	31.4	24	6
29-Jul	4	11	11	25	southwest	flood	31.1	26	7
	6	11	11	25	southwest	flood	39.9	50	5
	6.5	10	11	25	southeast	high	29.7	48	4
	7	11	11	28	southeast	flood	29.8	42	3
	8	12	11	25	southeast	ebb	29.7	32	3
30-Jul	6.5	10	11.3	40	southeast	ebb	29.8	39	4
	6	10	11.3	30	southeast	ebb	29.7	47	5
	5	11	11.8	25	southeast	ebb	29.2	35	6
	4	11	11.0	25	southeast	flood	29.6	25	6

Appendix G1. Total return estimates for sockeye salmon to Upper Cook Inlet,
Alaska, made during the 2001 season.

Total Run Estimate Based on Offshore Test Fishing Information					
Assume 15 July is mean 50% point of run across transect (On Time)					
Fit of 2001 data to 1979-2000 data					
Estimated Total CPUE					
Year	MSS	Current	Previous Day	Difference	Timing
1979	0.00646	1,406	1,393	13	Early 5 days
1980	0.02881	1,155	1,122	33	Early 9 days
1981	0.02525	1,123	1,093	31	Early 9 days
1982	0.00152	2,531	2,558	-27	Late 2 days
1983	0.00115	2,361	2,417	-57	On Time
1984	0.00415	1,544	1,539	5	Early 4 days
1985	0.00232	2,191	2,202	-11	On Time
1986	0.00153	2,328	2,356	-29	Late 1 day
1987	0.00077	3,190	3,280	-90	Late 2 days
1988	0.00329	1,834	1,835	-1	Early 2 days
1989	0.00689	1,900	1,878	22	On Time
1990	0.00130	4,040	4,329	-289	Late 3 days
1991	0.00095	2,879	2,978	-99	Late 2 days
1992	0.00150	3,232	3,422	-190	Late 2 days
1993	0.00140	2,049	2,083	-35	Early 1 day
1994	0.00083	3,186	3,252	-66	Late 4 days
1995	0.00137	2,291	2,367	-76	On Time
1996	0.00147	1,903	1,950	-47	Early 2 days
1997	0.00137	2,453	2,487	-35	Late 1 day
1998	0.00145	2,671	2,699	-28	Late 3 days
1999	0.00136	3,214	3,391	-177	Late 3 days
2000	0.00165	1,802	1,849	-47	Early 2 days
TOTAL RUN THROUGH		16-Jul	2,373,564		
Escapement				491,285	
Above Sonar					377,204
Below Sonar					50,000
Unassessed (15% of total assessed)					64,081
Cumulative Catch				1,294,442	
Daily Drift					335,237
Daily Set					198,291
Residual in District				587,837	
Drift (40% exploitation, if full district; 25%, if reduced district)					502,856
Set (70% exploitation)					84,982
2001 cumulative cpue		1,050	through	15-Jul	
2001 cumulative cpue		1,095	through	16-Jul	

Appendix G1. (p 2 of 6)

Offshore Test Fishing Total Run Estimates for 2001								
Passage Rate (Total Run/Cumulative CPUE)				2,168 Based on		16-Jul harvest		
Total cpue for season, if 15 July is 50% point:				2,100				
Run Estimate Based on Average Timing (15 July 50% Point)				4,552,040				
Run Remaining				2,178,477				
Run Estimates Based on Model Results (Fit of Current Year to Past Years)								
Year	MSS	Estimated Total CPUE			Estimated Total Run	Timing	Run	
		Current	Previous Day	Difference			Remaining	Mean/Day
1987	0.00077	3,190	3,280	-90	6,915,698	Late 2 days	4,542,134	150
1994	0.00083	3,186	3,252	-66	6,905,662	Late 4 days	4,532,098	149
1991	0.00095	2,879	2,978	-99	6,240,674	Late 2 days	3,867,110	127
1983	0.00115	2,361	2,417	-57	5,116,819	On Time	2,743,255	90
1990	0.00130	4,040	4,329	-289	8,756,912	Late 3 days	6,383,348	210
1999	0.00136	3,214	3,391	-177	6,966,659	Late 3 days	4,593,096	151
1995	0.00137	2,291	2,367	-76	4,966,450	On Time	2,592,886	85
1997	0.00137	2,453	2,487	-35	5,316,978	Late 1 day	2,943,414	97
1993	0.00140	2,049	2,083	-35	4,440,450	Early 1 day	2,066,886	68
1998	0.00145	2,671	2,699	-28	5,789,393	Late 3 days	3,415,829	113
1996	0.00147	1,903	1,950	-47	4,124,344	Early 2 days	1,750,780	58
1992	0.00150	3,232	3,422	-190	7,004,940	Late 2 days	4,631,376	153
1982	0.00152	2,531	2,558	-27	5,486,488	Late 2 days	3,112,924	103
1986	0.00153	2,328	2,356	-29	5,045,677	Late 1 day	2,672,113	88
2000	0.00165	1,802	1,849	-47	3,906,821	Early 2 days	1,533,257	51
1985	0.00232	2,191	2,202	-11	4,749,404	On Time	2,375,840	78
1988	0.00329	1,834	1,835	-1	3,975,427	Early 2 days	1,601,863	53
1984	0.00415	1,544	1,539	5	3,347,202	Early 4 days	973,638	32
1979	0.00646	1,406	1,393	13	3,047,873	Early 5 days	674,309	22
1989	0.00689	1,900	1,878	22	4,117,624	On Time	1,744,060	57
1981	0.02525	1,123	1,093	31	2,435,147	Early 9 days	61,583	2
1980	0.02881	1,155	1,122	33	2,503,102	Early 9 days	129,538	4

Appendix G1. (p 3 of 6)

Total Run Estimate Based on Offshore Test Fishing Information					
Assume 15 July is mean 50% point of run across transect (On Time)					
Fit of 2001 data to 1979-2000 data					
Estimated Total CPUE					
Year	MSS	Current	Previous Day	Difference	Timing
1979	0.00579	1,443	1,426	17	Early 5 days
1980	0.02780	1,243	1,211	32	Early 9 days
1981	0.02493	1,208	1,177	32	Early 9 days
1982	0.00154	2,429	2,458	-29	Late 2 days
1983	0.00181	2,203	2,246	-43	On Time
1984	0.00356	1,557	1,548	9	Early 4 days
1985	0.00207	2,142	2,153	-12	On Time
1986	0.00161	2,232	2,258	-26	Late 1 day
1987	0.00145	2,918	2,999	-81	Late 2 days
1988	0.00280	1,821	1,820	0	Early 2 days
1989	0.00592	1,939	1,923	16	On Time
1990	0.00380	3,319	3,527	-208	Late 3 days
1991	0.00203	2,606	2,685	-79	Late 2 days
1992	0.00387	2,759	2,893	-134	Late 2 days
1993	0.00169	1,954	1,978	-23	Early 1 day
1994	0.00121	2,967	3,033	-66	Late 4 days
1995	0.00257	2,102	2,152	-51	On Time
1996	0.00217	1,794	1,819	-26	Early 2 days
1997	0.00153	2,338	2,370	-32	Late 1 day
1998	0.00146	2,562	2,593	-31	Late 3 days
1999	0.00351	2,766	2,894	-128	Late 3 days
2000	0.00235	1,703	1,725	-22	Early 2 days
TOTAL RUN THROUGH		19-Jul	2,696,133		
Escapement				768,009	
	Above Sonar				567,834
	Below Sonar				100,000
	Unassessed (15% of total assessed)				100,175
Cumulative Catch				1,645,272	
	Daily Drift				153,525
	Daily Set				122,650
Residual in District				282,852	
	Drift (40% exploitation, if full district; 25%, if reduced district)				230,288
	Set (70% exploitation)				52,564
2000 cumulative cpue		1,050	through	15-Jul	
2000 cumulative cpue		1,294	through	19-Jul	

Appendix G1. (p 4 of 6)

Offshore Test Fishing Total Run Estimates for 2001								
Passage Rate (Total Run/Cumulative CPUE)				2,084 Based on		19-Jul harvest		
Total cpue for season, if 15 July is 50% point:				2,100				
Run Estimate Based on Average Timing (15 July 50% Point)				4,375,486				
Run Remaining				1,679,353				
Run Estimates Based on Model Results (Fit of Current Year to Past Years)								
Year	MSS	Estimated Total CPUE			Estimated Total Run	Timing	Run	
		Current	Previous Day	Difference			Remaining	Mean/Day
1994	0.00121	2,967	3,033	-66	6,181,145	Late 4 days	3,485,012	119
1987	0.00145	2,918	2,999	-81	6,079,634	Late 2 days	3,383,501	116
1998	0.00146	2,562	2,593	-31	5,337,447	Late 3 days	2,641,314	91
1997	0.00153	2,338	2,370	-32	4,871,395	Late 1 day	2,175,263	75
1982	0.00154	2,429	2,458	-29	5,061,417	Late 2 days	2,365,284	81
1986	0.00161	2,232	2,258	-26	4,650,121	Late 1 day	1,953,988	67
1993	0.00169	1,954	1,978	-23	4,072,161	Early 1 day	1,376,028	47
1983	0.00181	2,203	2,246	-43	4,590,823	On Time	1,894,690	65
1991	0.00203	2,606	2,685	-79	5,429,687	Late 2 days	2,733,554	94
1985	0.00207	2,142	2,153	-12	4,462,225	On Time	1,766,092	61
1996	0.00217	1,794	1,819	-26	3,737,582	Early 2 days	1,041,449	36
2000	0.00235	1,703	1,725	-22	3,548,332	Early 2 days	852,199	29
1995	0.00257	2,102	2,152	-51	4,379,320	On Time	1,683,187	58
1988	0.00280	1,821	1,820	0	3,793,838	Early 2 days	1,097,705	38
1999	0.00351	2,766	2,894	-128	5,762,765	Late 3 days	3,066,632	105
1984	0.00356	1,557	1,548	9	3,244,923	Early 4 days	548,790	19
1990	0.00380	3,319	3,527	-208	6,915,560	Late 3 days	4,219,427	145
1992	0.00387	2,759	2,893	-134	5,749,097	Late 2 days	3,052,964	105
1979	0.00579	1,443	1,426	17	3,006,355	Early 5 days	310,222	11
1989	0.00592	1,939	1,923	16	4,039,428	On Time	1,343,295	46
1981	0.02493	1,208	1,177	32	2,517,634	Early 9 days	-178,499	-6
1980	0.02780	1,243	1,211	32	2,590,309	Early 9 days	-105,824	-4

Appendix G1. (p 5 of 6)

Total Run Estimate Based on Offshore Test Fishing Information					
Assume 15 July is mean 50% point of run across transect (On Time)					
Fit of 2001 data to 1979-2000 data					
Year	MSS	Estimated Total CPUE			Timing
		Current	Previous Day	Difference	
1979	0.00493	1,503	1,493		10 Early 5 days
1980	0.02524	1,391	1,374		18 Early 9 days
1981	0.02414	1,360	1,341		19 Early 9 days
1982	0.00356	2,136	2,162		-26 Late 2 days
1983	0.00466	1,918	1,937		-20 On Time
1984	0.00274	1,572	1,566		6 Early 4 days
1985	0.00280	1,966	1,981		-14 On Time
1986	0.00338	1,990	2,009		-19 Late 1 day
1987	0.00650	2,342	2,391		-49 Late 2 days
1988	0.00239	1,752	1,755		-3 Early 2 days
1989	0.00429	1,907	1,910		-3 On Time
1990	0.01553	2,314	2,382		-68 Late 3 days
1991	0.00729	2,118	2,154		-37 Late 2 days
1992	0.01240	2,096	2,140		-44 Late 2 days
1993	0.00297	1,784	1,794		-10 Early 1 day
1994	0.00524	2,428	2,477		-49 Late 4 days
1995	0.00563	1,824	1,841		-16 On Time
1996	0.00310	1,661	1,665		-4 Early 2 days
1997	0.00376	2,053	2,076		-23 Late 1 day
1998	0.00365	2,231	2,262		-31 Late 3 days
1999	0.01167	2,113	2,157		-44 Late 3 days
2000	0.00283	1,604	1,604		0 Early 2 days
TOTAL RUN THROUGH			26-Jul	3,233,773	
Escapement				1,198,952	
	Above Sonar				942,567
	Below Sonar				100,000
	Unassessed (15% of total assessed)				156,385
Cumulative Catch				1,784,821	
	Daily Drift				11,673
	Daily Set				44,536
Residual in District				250,000	
	Drift (40% exploitation, if full district; 25%, if reduced district)				28,015
	Set (70% exploitation)				19,087
2001 cumulative cpue		1,050	through	15-Jul	
2001 cumulative cpue		1,525	through	26-Jul	

Appendix G1. (p 6 of 6)

Offshore Test Fishing Total Run Estimates for 2001								
Passage Rate (Total Run/Cumulative CPUE)				2,121 Based on		26-Jul harvest		
Total cpue for season, if 15 July is 50% point:				2,100				
Run Estimate Based on Average Timing (15 July 50% Point)				4,453,065				
Run Remaining				1,219,291				
Run Estimates Based on Model Results (Fit of Current Year to Past Years)								
Year	MSS	Estimated Total CPUE			Estimated Total Run	Timing	Run Remaining	Mean/Day
		Current	Previous Day	Difference				
1988	0.00239	1,752	1,755	-3	3,715,404	Early 2 days	481,631	16
1984	0.00274	1,572	1,566	6	3,333,076	Early 4 days	99,303	3
1985	0.00280	1,966	1,981	-14	4,169,956	On Time	936,183	32
2000	0.00283	1,604	1,604	0	3,401,357	Early 2 days	167,584	6
1993	0.00297	1,784	1,794	-10	3,784,023	Early 1 day	550,250	19
1996	0.00310	1,661	1,665	-4	3,521,674	Early 2 days	287,901	10
1986	0.00338	1,990	2,009	-19	4,220,148	Late 1 day	986,375	33
1982	0.00356	2,136	2,162	-26	4,529,233	Late 2 days	1,295,460	44
1998	0.00365	2,231	2,262	-31	4,731,254	Late 3 days	1,497,481	50
1997	0.00376	2,053	2,076	-23	4,353,570	Late 1 day	1,119,797	38
1989	0.00429	1,907	1,910	-3	4,043,383	On Time	809,610	27
1983	0.00466	1,918	1,937	-20	4,066,093	On Time	832,320	28
1979	0.00493	1,503	1,493	10	3,187,334	Early 5 days	-46,439	-2
1994	0.00524	2,428	2,477	-49	5,148,591	Late 4 days	1,914,818	65
1995	0.00563	1,824	1,841	-16	3,868,695	On Time	634,922	21
1987	0.00650	2,342	2,391	-49	4,965,888	Late 2 days	1,732,115	58
1991	0.00729	2,118	2,154	-37	4,490,513	Late 2 days	1,256,740	42
1999	0.01167	2,113	2,157	-44	4,481,352	Late 3 days	1,247,579	42
1992	0.01240	2,096	2,140	-44	4,444,710	Late 2 days	1,210,937	41
1990	0.01553	2,314	2,382	-68	4,907,065	Late 3 days	1,673,292	56
1981	0.02414	1,360	1,341	19	2,882,914	Early 9 days	-350,859	-12
1980	0.02524	1,391	1,374	18	2,950,325	Early 9 days	-283,448	-10

Appendix H. Yearly mean values (from all stations) for selected chemical and physical variables collected daily during conduct of the offshore testfish project.

Year	Air Temp. (c)	Water Temp. (c)	Wind Vel. (knots)	Salinity (ppt)	Secchi (m)
1979	12.4	12.2	5.9	25.0	5.7
1980	12.4	10.0	8.2	24.8	4.2
1981	13.4	11.0	10.1	23.1	4.1
1982	12.0	8.5	9.0	20.3	5.0
1983	14.9	10.9	9.4	20.6	4.7
1984	13.5	10.8	9.1	14.3	5.3
1985	10.8	8.2	9.2	28.0	5.5
1986	10.6	9.1	8.2	-	5.4
1987	12.6	10.1	4.1	28.4	5.1
1988	14.2	9.1	8.9	30.2	4.7
1989	13.1	10.0	4.4	27.7	4.7
1990	12.3	11.4	8.5	21.3	4.6
1991	10.9	9.9	6.6	13.1	4.1
1992	12.0	11.1	5.4	28.4	4.3
1993	13.5	10.5	6.9	26.2	5.0
1994	13.0	10.0	9.3	29.0	6.0
1995	13.1	9.5	7.9	26.5	4.6
1996	12.6	10.0	9.1	30.8	4.7
1997	13.8	10.5	10.0	30.6	4.0
1998	12.5	10.3	8.3	30.0	5.4
1999	13.4	10.3	12.4	30.2	4.5
2000	13.5	10.5	12.2	30.1	5.2
1979-2000 Avg	12.8	10.2	8.3	25.6	4.8
2001	12.9	10.7	10.7	30.1	5.2

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